Communicable Disease Surveillance

Public Health Nurse Conference
April 28, 2009

Surveillance and Investigation Division &
Indiana State Department of Health Laboratories,
Indiana State Department of Health

Disease Reporting

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ISDH Enteric Epidemiologist

Why Investigate Diseases?

Prevention is the source of urgency

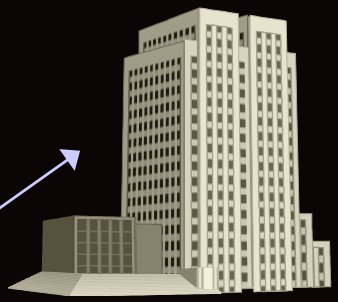
- Find and fix ongoing point source (contaminated water supply or food)
- Close problematic locations
- Identify agent (“smoking gun”)
- Find, isolate, and treat infectious people
- Provide prophylaxis to those exposed

Disease Reporting

Patient

Health Care Provider or Lab

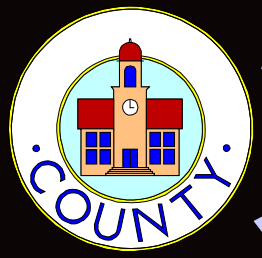
ELR



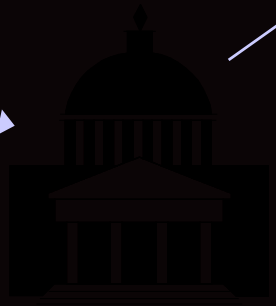
CDC

Weekly CDC transmission using INEDSS

Local Health Department



INEDSS CDR ELR Investigation**



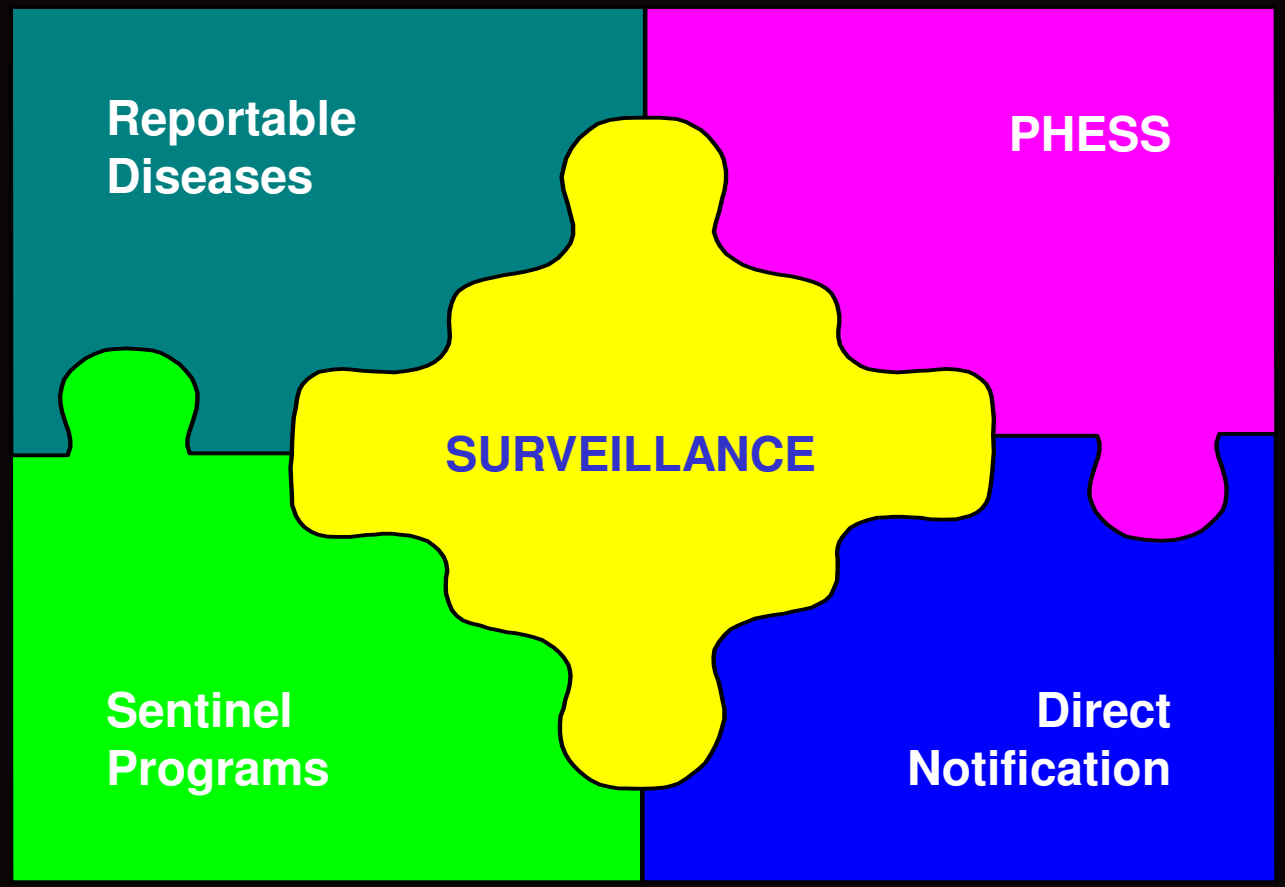
State Health Department

**Notify ISDH of results that are immediately reportable prior to initiating investigation

Surveillance

- Systematic and ongoing assessment of the health of a community
  - Collection
  - Analysis
  - Interpretation
  - Dissemination
  - Use of data

- Surveillance provides information for action


Reportable Diseases
PHESS
SURVEILLANCE
Sentinel Programs
Direct Notification

Reportable Diseases

- Health care providers, hospitals and labs report to LHD according to law
- LHD use ISDH case investigation forms to investigate and report cases
- Advantages
  - Inexpensive
  - Less labor intensive
  - Routine surveillance method

Communicable Disease Reporting Rule For Physicians, Hospitals, and Laboratories

410 IAC 1-2.3

REVISION EFFECTIVE DECEMBER 12, 2008

Purpose of Rule

- Identify and monitor diseases posing a particular public health threat to community
  - Severity
  - Ease of transmission
  - Control challenges
- Define who has authority and responsibility to monitor and respond

Rule Provisions

- Definitions
- Reporting requirements
- Reportable diseases
  - List for physicians and hospital administrators
  - List for laboratories
- Investigation procedures
- General control methods

Unchanged Rule Components

- Physicians and hospitals must report cases within required time frames*
  - Reportable immediately or within 72 hours
- Laboratories shall continue to report evidence of infections at least weekly to the ISDH*
- The Confidential Report of Communicable Diseases, in paper form or the electronic Indiana National Electronic Disease Surveillance System (INEDSS) form, remains unchanged

*Sections 47 & 48 have specific information on individual diseases/conditions

Changes for STD Reporting

- Physicians, Hospitals, and Laboratories should send reports of Chlamydia, gonorrhea, syphilis, and neonatal herpes to the local health officer based on the patient's county of residence
  - If unknown, the report should be sent to the county of the reporting facility
- The local health officer will forward to the Disease Intervention Specialist (DIS) for STD reporting

DIS List for STD Reporting

Jasper, Lake, Newton, Porter
Gary City Health Dept.
1145 W. 5th Ave.,
Gary, IN 46402
(219) 882-5565
Fax: 219-881-1396

Adams, Allen, DeKalb, Huntington, Jay, Kosciusko, LaGrange, Noble, Steuben, Wabash, Wells, Whitney
Allen Co. Health Dept.
1 E. Main St.
Fort Wayne, IN 46802
(260) 449-7504
Fax: 260-449-3507

Cass, Fulton, LaPorte, Marshall, Miami, Pulaski, Starke, St. Joseph
St. Joseph Co. Health Dept.
227 W. Jefferson Blvd.
South Bend, IN 46601
(574) 235-9740
Fax: 574-245-6581

Benton, Carroll, Clinton, Fountain, Montgomery, Tippecanoe, Warren, White
Planned Parenthood-Lafayette
964 Mezzanine Dr.
Lafayette, IN 47905
(765) 446-8078, x 1557
Fax: 765-446-8148

Elkhart
Elkhart Co. Health Dept.
608 Oakland Ave.
Elkhart, IN 46514
(574) 523-2125
Fax: 574-389-3153

Blackford, Decatur, Delaware, Fayette, Franklin, Grant, Henry, Howard, Madison, Randolph, Rush, Tipton, Union, Wayne
Madison Co. Health Dept.
206 E. 9th St.
Anderson, IN 46016
(765) 646-9206;
Fax: 765-646-9208

Boone, Hamilton, Hancock, Hendricks, Johnson, Marion, Morgan, Shelby
Marion Co. Health Dept.
1101 W. 10th St.
Indianapolis, IN 46202
(317) 221-8300
Fax: 317-221-8301

Bartholomew, Brown, Clay, Greene, Lawrence, Monroe, Owen, Parke, Putnam, Sullivan, Vermillion, Vigo
Monroe Co. Health Dept.
338 S. Walnut
Bloomington, IN 47403
(812) 349-2829
Fax: 812-349-7346

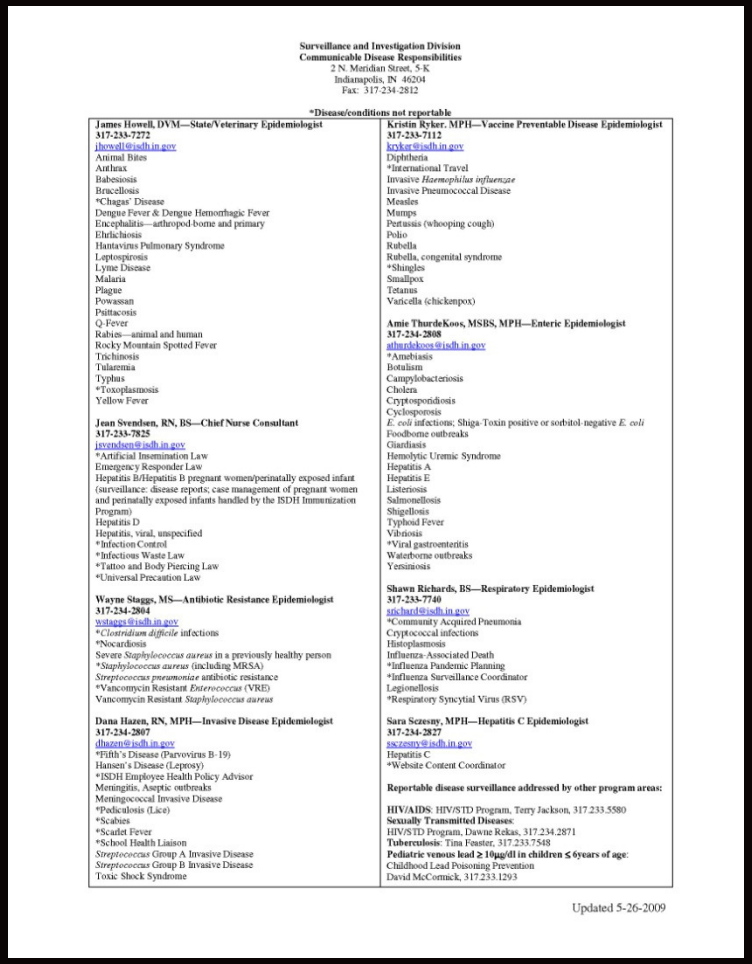
Daviess, Dubois, Gibson, Knox, Martin, Perry, Pike, Posey, Spencer, Vanderburgh, Warrick
Vanderburgh Co. Health Dept.
420 Mulberry St.
Evansville, IN 47713
(812) 435-5683
Fax: 812-435-5041

Clark, Crawford, Dearborn, Floyd, Harrison, Jackson, Jefferson, Jennings, Ohio, Orange, Ripley, Scott, Switzerland, Washington
Clark Co. Health Dept.
1301 Akers Avenue
Jeffersonville, IN 47130
(812) 283-2586
Fax: 812-288-1474

Major Changes to Rule: Additions

- Diseases and Conditions that have been added and are now reportable:
  - Dengue and Dengue Hemorrhagic Fever (Section 65)
  - Giardiasis (Section 66.5)
  - Hepatitis, viral, Type E (Section 74.5)
  - Influenza-Associated Death (Section 76.5)
  - Neonatal Herpes (Section 87.5)
  - Powassan (type of arboviral encephalitis) (Section 65)
  - Severe *Staphylococcus aureus in a previously health person (Section 98)*
  - Varicella (chickenpox) - all cases reportable (Section 110)
  - Vibriosis (Section 110.5)
  - Yersiniosis (Section 112)

Communicable Disease Responsibilities List



Surveillance and Investigation Division
Communicable Disease Responsibilities
2 N. Meridian Street, 5-K
Indianapolis, IN 46204
Fax: 317-234-2812

***Disease/conditions not reportable**

James Howell, DVM—State/Veterinary Epidemiologist
317-233-7272
jhowell@isdh.in.gov
Animal Bites
Anthrax
Babesiosis
Brucellosis
*Chagas' Disease
Dengue Fever & Dengue Hemorrhagic Fever
Encephalitis—arthropod-borne and primary
Ehrlichiosis
Hantavirus Pulmonary Syndrome
Leptospirosis
Lyme Disease
Malaria
Plague
Powassan
Psittacosis
Q-Fever
Rabies—animal and human
Rocky Mountain Spotted Fever
Trichinosis
Tularemia
Typhus
*Toxoplasmosis
Yellow Fever

Jean Svendsen, RN, BS—Chief Nurse Consultant
317-233-7825
jsvendsen@isdh.in.gov
*Artificial Insemination Law
Emergency Responder Law
Hepatitis B/Hepatitis B pregnant women/perinatally exposed infant (surveillance: disease reports; case management of pregnant women and perinatally exposed infants handled by the ISDH Immunization Program)
Hepatitis D
Hepatitis, viral, unspecified
*Infection Control
*Infectious Waste Law
*Tattoo and Body Piercing Law
*Universal Precaution Law

Wayne Staggs, MS—Antibiotic Resistance Epidemiologist
317-234-2804
wstaggs@isdh.in.gov
*_Clostridium difficile_ infections
*Nocardiosis
Severe _Staphylococcus aureus_ in a previously healthy person
*_Staphylococcus aureus_ (including MRSA)
Streptococcus pneumoniae antibiotic resistance
*Vancomycin Resistant _Enterococcus_ (VRE)
Vancomycin Resistant _Staphylococcus aureus_

Dana Hazen, RN, MPH—Invasive Disease Epidemiologist
317-234-2807
dhazen@isdh.in.gov
*Fifth's Disease (Parvovirus B-19)
Hansen's Disease (Leprosy)
*ISDH Employee Health Policy Advisor
Meningitis, Aseptic outbreaks
Meningococcal Invasive Disease
*Pediculosis (Lice)
*Scabies
*Scarlet Fever
*School Health Liaison
Streptococcus Group A Invasive Disease
Streptococcus Group B Invasive Disease
Toxic Shock Syndrome

Kristin Ryker, MPH—Vaccine Preventable Disease Epidemiologist
317-233-7112
kryker@isdh.in.gov
Diphtheria
*International Travel
Invasive _Haemophilus influenzae_
Invasive Pneumococcal Disease
Measles
Mumps
Pertussis (whooping cough)
Polio
Rubella
Rubella, congenital syndrome
*Shingles
Smallpox
Tetanus
Varicella (chickenpox)

Amie ThurdeKoos, MSBS, MPH—Enteric Epidemiologist
317-234-2808
athurdekoos@isdh.in.gov
*Amebiasis
Botulism
Campylobacteriosis
Cholera
Cryptosporidiosis
Cyclosporosis
E. coli infections; Shiga-Toxin positive or sorbitol-negative _E. coli_
Foodborne outbreaks
Giardiasis
Hemolytic Uremic Syndrome
Hepatitis A
Hepatitis E
Listeriosis
Salmonellosis
Shigellosis
Typhoid Fever
Vibriosis
*Viral gastroenteritis
Waterborne outbreaks
Yersiniosis

Shawn Richards, BS—Respiratory Epidemiologist
317-233-7740
srichard@isdh.in.gov
*Community Acquired Pneumonia
Cryptococcal infections
Histoplasmosis
Influenza-Associated Death
*Influenza Pandemic Planning
*Influenza Surveillance Coordinator
Legionellosis
*Respiratory Syncytial Virus (RSV)

Sara Szesny, MPH—Hepatitis C Epidemiologist
317-234-2827
sszesny@isdh.in.gov
Hepatitis C
*Website Content Coordinator

Reportable disease surveillance addressed by other program areas:

HIV/AIDS: HIV/STD Program, Terry Jackson, 317.233.5580
Sexually Transmitted Diseases:
HIV/STD Program, Dawne Rekas, 317.234.2871
Tuberculosis: Tina Feaster, 317.233.7548
Pediatric venous lead ≥ 10µg/dl in children ≤ 6years of age:
Childhood Lead Poisoning Prevention
David McCormick, 317.233.1293

Updated 5-26-2009

Major Changes to Rule: Deletions

- Diseases and Conditions that are no longer reportable:
  - Aseptic Meningitis (Section 84 repealed)
  - Pediatric Blood Lead Levels (Section 87 repealed)
    - A new rule regarding the reporting, monitoring and prevention of lead poisoning was adopted in 2007. This rule can be found at http://www.in.gov/legislative/iac/T04100/A00290.PDF

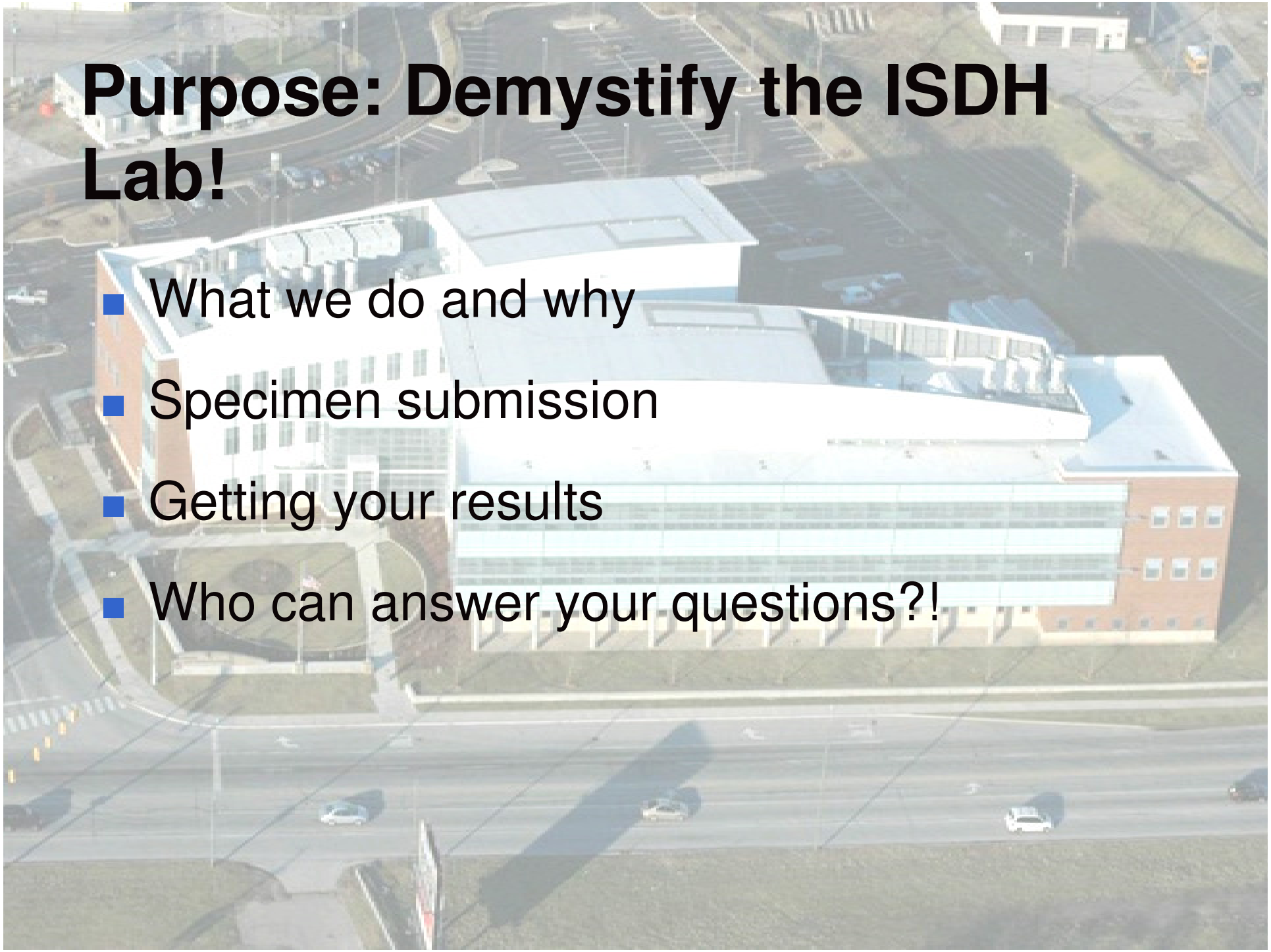
Major Changes to Rule

- Physicians, hospitals and laboratories must report cases to the LHD of the county or city in which the patient normally resides [Section 47 (b)]
- Laboratory reporting requirements
  - Laboratory's accession number or numeric identifier and CLIA ID number [Section 48 (b)]
  - Amends reporting requirements for laboratories when a specimen is identified by a numeric identifier code and not by the name of the patient [Section 48 (c)]
- Identifies the ISDH as a public health authority as defined by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Privacy Rule
  - ISDH is authorized to receive protected health information, wherever maintained, without patient authorization for the purposes of public health surveillance, investigation, interventions, and as otherwise permitted by law [Section 49 (g)].
- Several disease specific sections add and/or modify control measures for schools, daycare facilities, preschools, health care facilities and food handlers*

** See disease specific section for control measures*

ISDH Laboratory

Ellie Carter, MT(ASCP), MPH
ISDH Laboratory Program Advisor

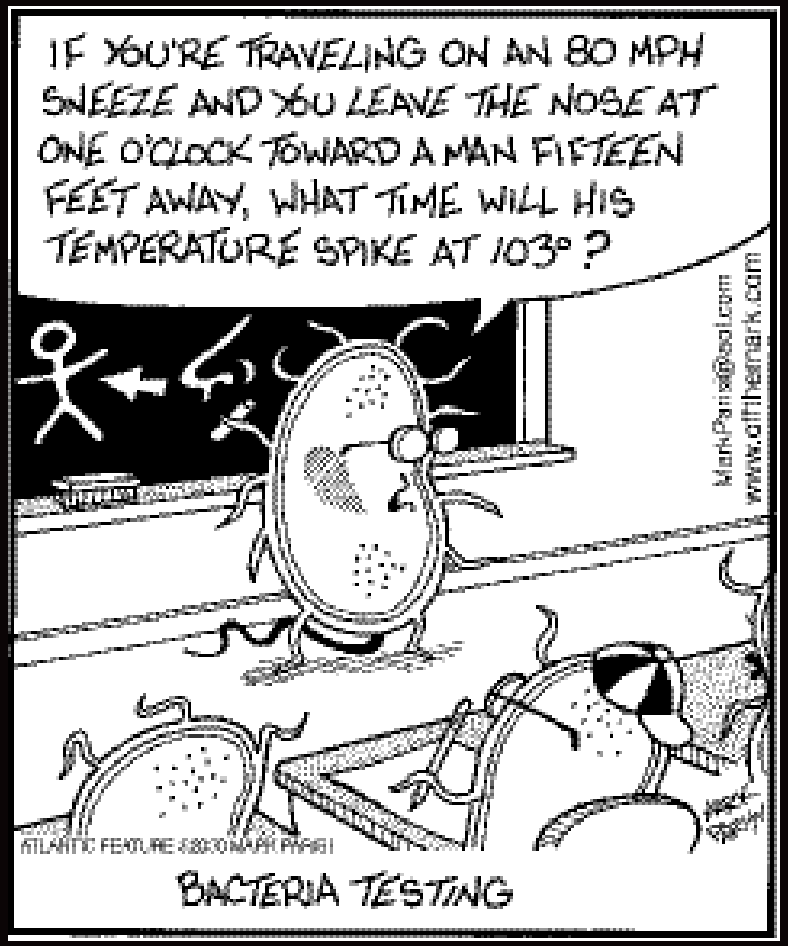


Purpose: Demystify the ISDH Lab!

- What we do and why
- Specimen submission
- Getting your results
- Who can answer your questions?!

What We Do and Why

"Excuse me, sir, would you mind getting the door for us?"

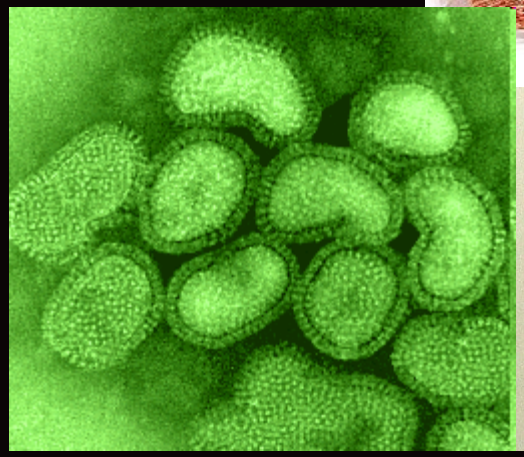


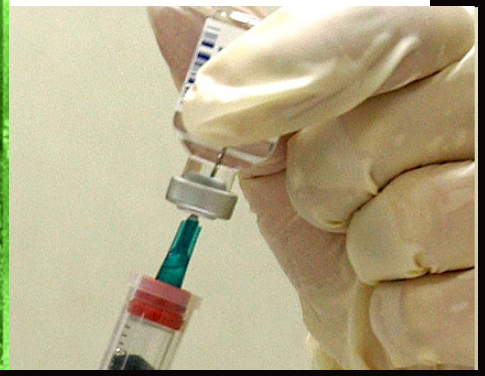
What We Do and Why

- ISDH lab specs:
  - About 110 staff
  - Microbiology and chemistry analysis
- Support testing for ISDH program areas, for example:
  - TB
  - STD/HIV
  - Epi Resource Center (ERC)
  - Preparedness
  - Food Protection
  - Blood lead
  - IDEM (separate state agency)

What We Do and Why

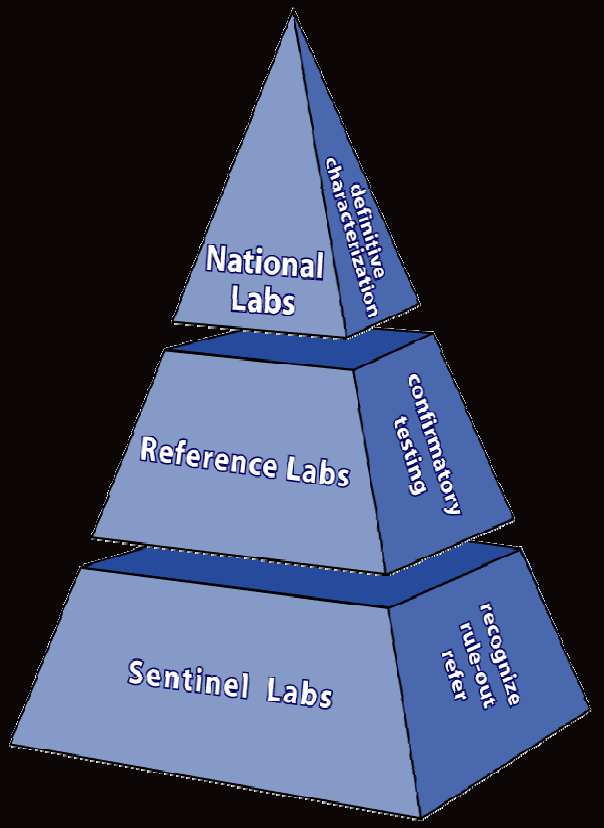
- Collaboration with the ERC on communicable disease surveillance and investigation
  - Influenza
  - Vaccine preventable disease
  - Invasive disease
  - Food borne disease
  - Hepatitis
  - Zoononoic disease
  - And more…





ISDH Lab and the Laboratory Response Network (LRN)

- CDC National Laboratories
- ISDH and other state PH laboratories
- Hospital and Clinical Labs



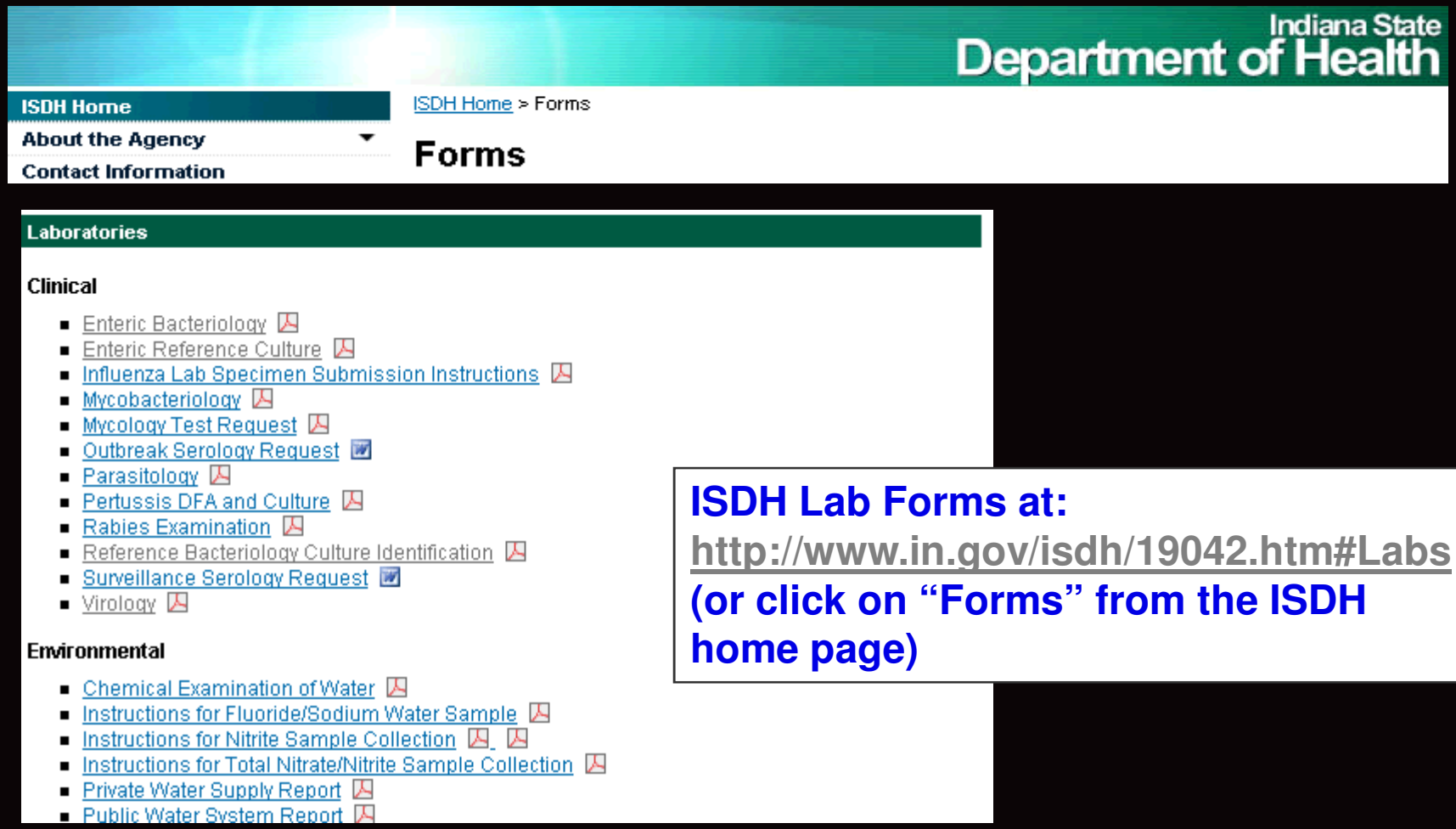
How Do I Get a Specimen to the Lab?

- Preferred: UPS, FedEx, courier
  - As long as samples get to us quickly!
  - TB has their own dedicated contract with UPS
  - USPS tends to take longer

- UPS contract info
  - The ISDH lab has a UPS contract LHDs can take advantage of! See attached info.

- There is no ISDH courier…
  but the lab would
  like to have one!

Which Form Do I have to Fill Out??



ISDH Lab Forms at:
http://www.in.gov/isdh/19042.htm#Labs
(or click on "Forms" from the ISDH home page)

How Do I Get Lab Results?

- Depends on the type and urgency of the result
  - LimsNet submitters can access results online, in real-time
  - Others are faxed or mailed, depending on lab area

Want to Get Your Lab Results More Quickly?

- **LimsNet may be able to help you**
  - Electronic lab specimen submission and reporting system
  - Submission and results available for:
    - CT/GC, Syphilis, HIV, Hep A/B/C, Herpes, influenza, VZV
  - Soon to be available for:
    - TB, Blood lead, Metals, BT/CT, Dairy, Rabies, Others…
  - Many LHDs already registered for available lab results

- ***Interested? To get set-up, call our LIMS Help Desk at 317-921-5506, or 888-535-0011, or email request to LimsAppSupport@isdh.in.gov***

Got Questions?

- We've got answers
  - Call the lab anytime! (see attached contacts)
  - Lab area supervisors also listed on our webpage
- Forthcoming lab services manual and re-vamped website
  - In the works and should be available very soon
- And news
  - New ISDH Lab Newsletter on the Lab website
- **You can also visit me tomorrow at the ISDH Lab booth!**

Surveillance Methods & Outbreaks

Shawn Richards, BS
ISDH Respiratory Epidemiologist

Indiana National Electronic Disease Surveillance System (I-NEDSS)

- I-NEDSS is a web-based application that promotes the collection, integration, and sharing of data at federal, state, and local levels
- The purpose of I-NEDSS is to automate the current process for reportable diseases, as defined by IAC 410
- The system includes lab reports, communicable disease reports (CDRs), and ISDH case investigations forms

Sentinel Surveillance

- Selected providers/facilities report
- Monitor key health indicators or events (often seasonal)
- Monitor conditions for which information not otherwise available
- Monitor conditions in subgroups more susceptible
- Used to calculate disease morbidity

Syndromic Surveillance (PHESS)

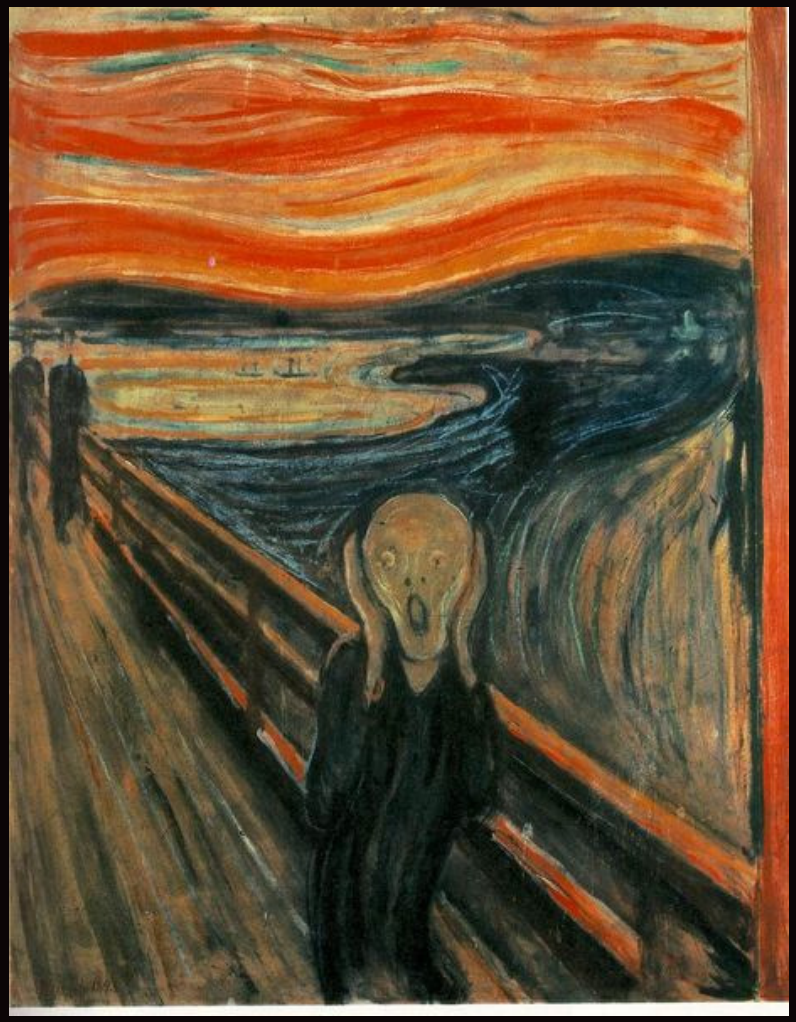
- Gives information before diagnosis is available
- Data streams
  - Chief complaints from 73 hospital EDs
  - OTC retail drug sales
  - School absenteeism

School Absenteeism

- Joint rule created by Indiana Department of Education and ISDH
- All schools must report absenteeism rates of 20% or above regardless of cause to LHD
- LHD will investigate, notify ISDH if needed
- 20% is legal minimum threshold—report if notice ANY abnormal absenteeism rate

Direct Notification

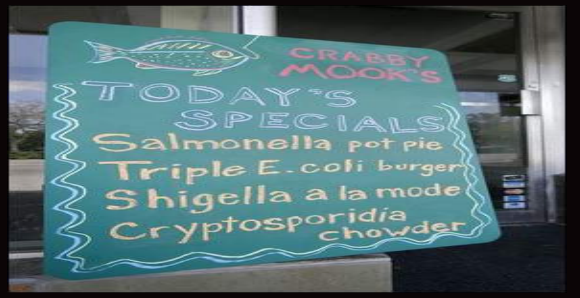
- Phone call
- E-mail
- News report
- Fridays at 4:00



What is an Outbreak?

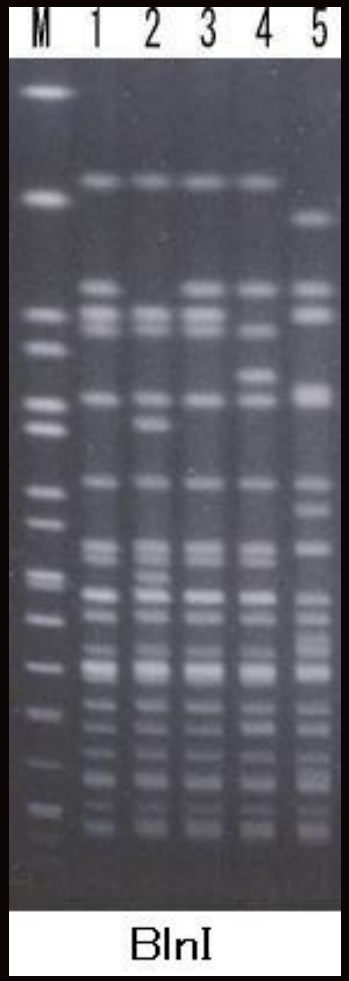
- Occurrence of more cases of a disease than expected in a population during a certain time
- One case of smallpox, anthrax, plague, botulism, or tuberculosis anywhere in the US is an outbreak requiring immediate response
- Epidemic and outbreak are the same
  - Epidemic is often applied to an outbreak of special concern

Outbreak Detection



- Recognized and reported by health care providers
- Recognized and reported by those affected (e.g., coworkers, school, banquet)
- Detected by PH agency through surveillance
- Enhanced surveillance in cooperation with state and federal public health officials

Investigating Outbreaks



- Detect problem
- Verify diagnosis
- Confirm epidemic
- Identify / count cases
- Characterize data → time / place / person
- Identify agent
- Take immediate control measures
- Formulate / test hypotheses
- Implement / evaluate additional control measures
- Report findings

Case Interviewing & Meningococcal Disease

Dana A. Hazen, RN, MPH
ISDH Invasive Disease Epidemiologist

Investigation Procedures

- Provider reports case to local health department
- Local health department (LHD) uses ISDH case investigation form to investigate case
  - obtain demographic and clinical information from provider
  - obtain demographic and exposure history from case
- LHD reviews information for risk factors, links
- LHD can advise regarding disease information and control methods
- LHD sends completed form to ISDH

Case Interviewing

- Contact provider and patient to gather demographic, clinical, risk factors and contact information
  - Race/ethnicity data is very important to ascertain at-risk groups
  - Food history for enteric conditions
  - Vaccination history
- Contact Tracing
  - Questionnaire to identify at-risk individuals
  - Scripting/letters to provide information to close contacts

Meningococcal Disease

Case Investigation & Contact Tracing

Meningococcal Disease:
Case Definition

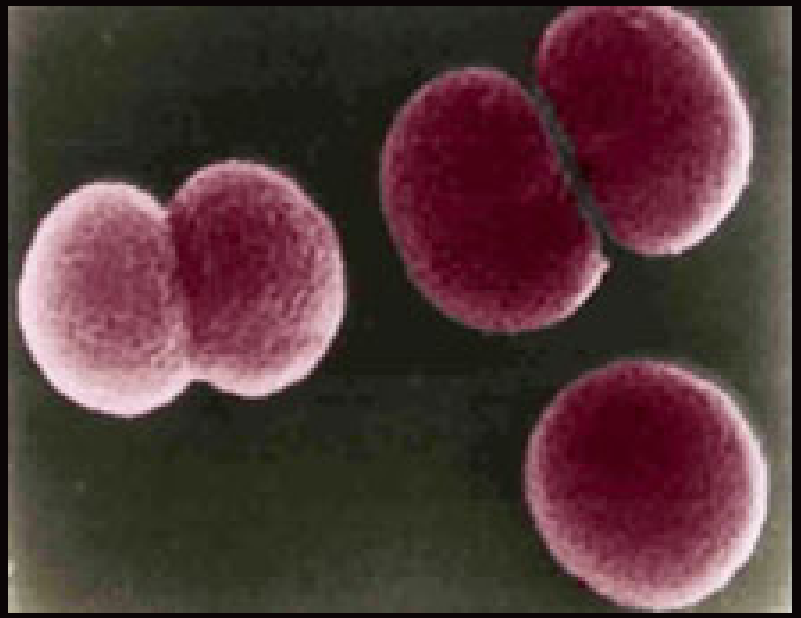
- **Suspect**
  - Clinical purpura fulminans in absence of positive blood culture
  - Clinically compatible case with gram negative diplococci from normally sterile site
- **Probable**
  - Clinically compatible case that has either
    - Evidence of N. meningitidis DNA obtained from normally sterile site
    - Evidence of N. meningitidis antigen by immunohistochemistry
- **Confirmed**
  - Clinically compatible case and isolation of *N. meningtitidis* from normally sterile site or skin scrapings of purpuric lesions

Meningococcal Disease:
Case Investigation

- *Immediately* report individual cases per The Indiana *Communicable Disease Reporting Rule for Physicians, Hospitals and Laboratories*, 410 IAC 1-2.3; December 12, 2008.
  - This **includes** suspect, probable or confirmed cases
  - Contact Invasive Disease Epi at ISDH prior to initiating investigation
- Identification of high-risk close contacts

Meningococcal Disease:
Important Labs

- CSF differential
- Gram stain result
  - Gram negative diplococci
- Culture (blood, CSF)
  - *Neisseria meningitidis*
- Specimen
  - Rapid PCR testing



Meningococcal Disease:
Close Contacts

- High-risk
  - Direct contact with patient's respiratory droplets (saliva)
    - 7 days prior to onset of symptoms
  - HCW's ET tube management/resuscitation
- Low-risk
  - Close contact of high-risk individuals
  - No direct contact with respiratory droplets (shared workplace, classroom, etc.)

Meningococcal Disease:
Contact Tracing

- Face to face interview is very effective
- Do not divulge PHI of patient when interviewing casual contacts
- Use family/friends to assist in identifying close contacts
- School Administrators to identify activities

Meningococcal Disease:
Sample Questionnaire

- Did the patient travel outside of Indiana in the 14 days prior to symptom onset?
  - Where did the patient travel (city, state and country)?
  - Method of transportation?
  - Dates of Travel?
- Is the patient employed?
  - Where?
  - Last date of work attendance?
  - Regularly assigned job duties?

Meningococcal Disease:
Sample Scripting

- Provides general information about the disease and all necessary public health interventions
- Allows investigator to avoid identifying the patient

Sample question:

"Have you shared food/drink with anyone in the previous 10 days?"

"If so, who?"

Meningococcal Disease: Activity

- Average time to complete investigation
- Average number of individuals prophylaxed per case
- Number of lab results received
- Media involvement

Any Questions?

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